State of Wisconsin/Department of Transportation

RESEARCH PROGRESS REPORT FOR THE QUARTER ENDING: Jun 30, 2001

Program: SPR-0010(36) FFY99	**Part: II Research and Development**
Project Title: Minimum Pavement Thickness for Superpave Mixes	**Project ID:** 0092-00-04
Administrative Contact: Nina McLawhorn	**Sponsor:**
WisDOT Technical Contact: Error! Bookmark not defined.	**Approved Starting Date:** Oct 1, 1999
Approved by COR/Steering Committee: $45,776.00	**Approved Ending Date:** Sep 30, 2001
Project Investigator (agency & contact): Hussain Bahia: UW-Madison	

Description: Error! Bookmark not defined.

Total study budget	Current FFY budget	Expenditures for current quarter	Total Expenditures to date
$45,776.00	**$22,888.00**	**$0.00**	**$0.00**

Progress This Quarter:
(Includes project committee mtgs, work plan status, contract status, significant progress, etc.)
The work this quarter consisted of bringing the laboratory study closer to completion, setting up field studies, and working on a literature review. The following sections include the details of progress for each of these activities.

Laboratory Study

In order to isolate the main effect of maximum size from the gradation, work progressed on testing a fine limestone mixture of the 12.5 mm size. A full set of mixtures compacted at 5 different thicknesses in the Gyratory Compactor was completed. Below are the plots of the data for the 12.5mm and 19mm blends, compacted at different thicknesses.

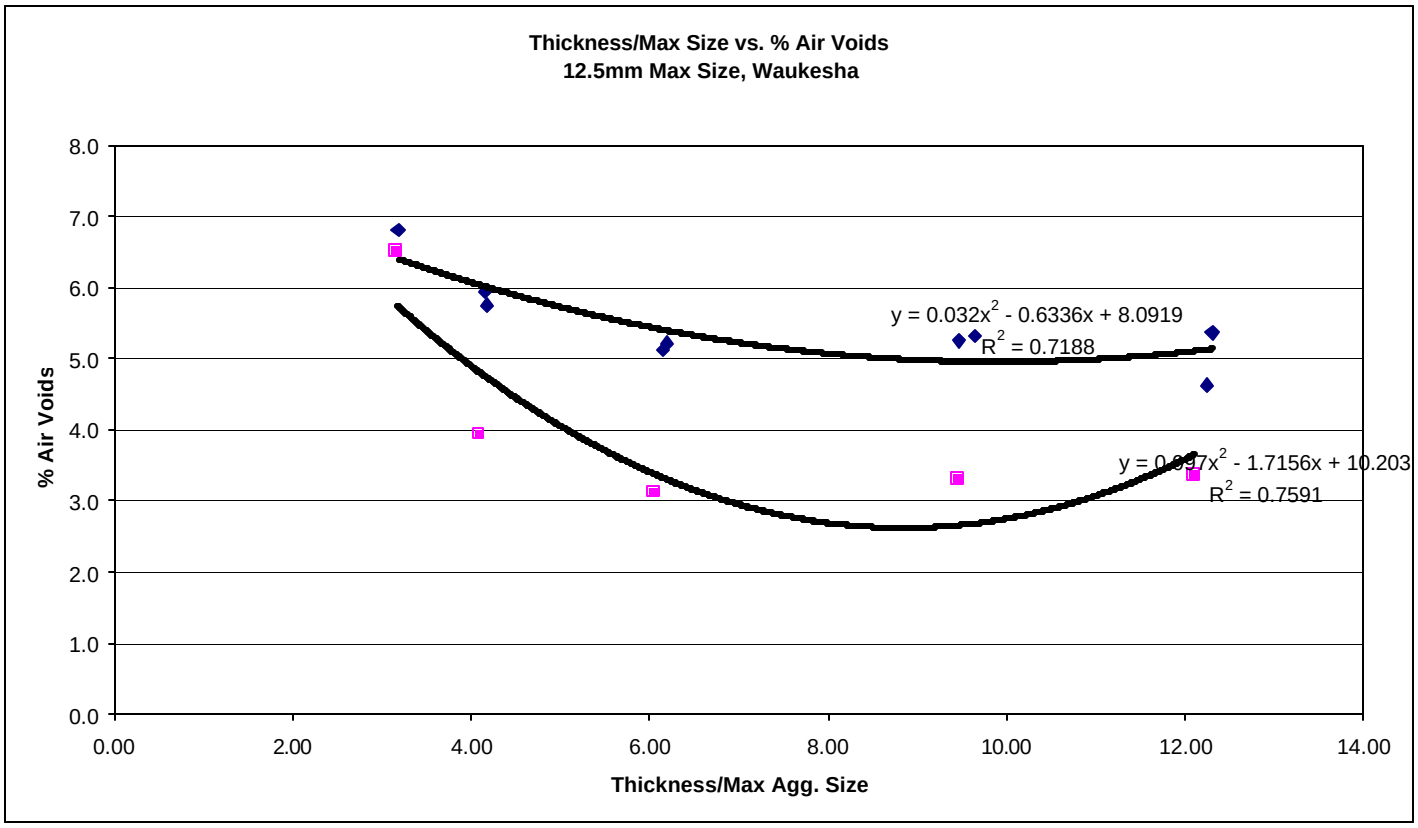

Figure 1: 12.5mm Fine Limestone Blend Voids vs. Thickness

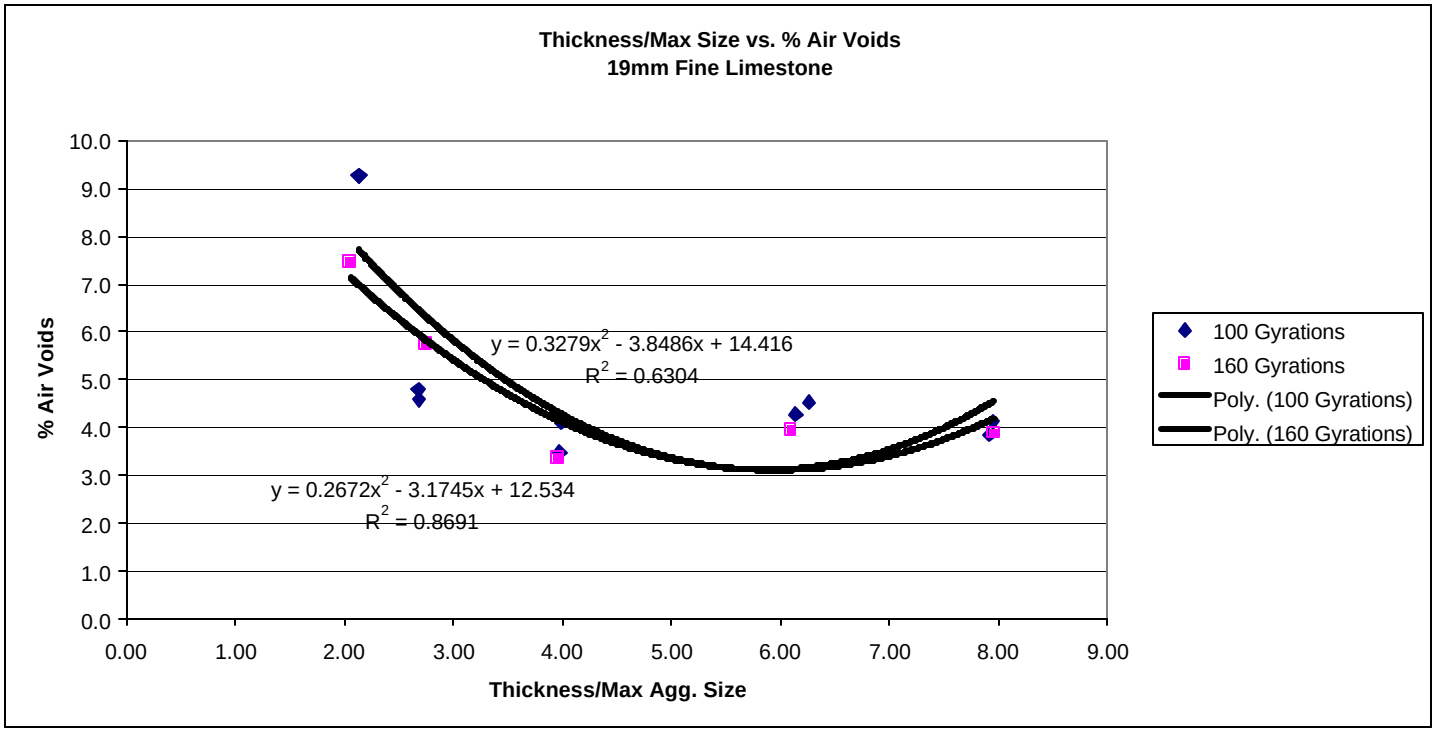

Figure 2: 19mm Fine Limestone Blend Thickness vs. Voids

Some of the data collected will be re-generated to confirm the trend and remove the possible experimental error. The general trend shows that the density values of the finer blends are less sensitive to thickness/maximum size than the coarser blends, which were previously tested. The fine limestone also has the same flat shape that the fine gravel mixes tester earlier showed. This indicates that the gradation (fine or coarse) is more important than the aggregate shape or type (gravel, limestone, etc.).

Field Study

Significant time has been spent coordinating between the contractors, the Wisconsin Department of Transportation Central and District offices, and the consultants running the various projects. The following projects have been set up to date:

1. **STH 13: Marshfield to Pittsville**

   An E10 Coarse Granite mixture has been designed in this project to overlay STH 13 for 10 miles from Marshfield to Pittsville. The overlay is to be 4" deep, done in two lifts over a milled surface.
   The following test sections have been set up:

Surface Test Sections:

1. Control Section (Contract Design):
   1.75" Surface (3.5x NM) with 2.25" Binder (3xNM)

2. Section 1:
   1.5" Surface (3xNM) with 2.5" Binder (3.3xNM)

3. Section 2:
   1.25" Surface (2.5xNM) with 2.75" Binder (3.7xNM)

4. Section 3: (if feasible, if problems exist with section 2, this will be skipped)
   1" Surface (2xNM) with 3" Binder (4xNM)

Binder Test Sections:

1. Section 4
   2" Surface (4xNM) with 2" Binder (2.7xNM)

2. Section 5
   2.25" Surface (4.5xNM) with 1.75" Binder (2.3xNM)

The binder course of these sections is being paved at the time of this report.

2. Interstate 43 Overlays: Manitowoc County

An E10 Fine blend has been developed to apply anywhere from a 4" to a 6" overlay on IH-43 for 13 miles. It is an overlay on a concrete base. Test sections have been set up in the following manner:

Surface Test Areas:

Section 1: (As designed for the contract – Control Strip)
1.75" Surface (3.5xNM) on top of 2" (2.7x) and 2.25" (3x) Binder lifts

Section 2:
1.5" Surface (3xNM) on top of 2" (2.7x) and 2.5" (3.3x) Binder lifts

Binder Test Areas:

Section 1:
1.75" Surface (3.5xNM) on top of 2.75" (3.7x) and 1.5" (2x) Binder lifts

The binder course of these sections is being paved at the time of this report.

Other projects in the works:

3. CTH H in Racine County: Issues are currently being worked out with the consultant in order to get this project approved. It is an E3 overlay on a pulverized base.

4. A possible job in Madison.

Progress is a little behind schedule in this area, but with a busy July, things should be brought back to where they are supposed to be.

Literature Review

A literature review of journals from the Association of Asphalt Paving Technologist and the Transportation Research Record is nearing completion. Articles from other sources are also being included when they fit the criteria of this study.

Work Next Quarter:

The work next quarter will focus on tbe field study. Hopefully by the end of July or the middle of August the field research will be completed. Also being completed will be the literature review. With those components being completed, the laboratory study can be completed. By the end of the quarter, a rough draft of the final report will be ready for review.

The key to successful completion of the study will be the cooperation of the various agencies in completing the field research. Cooperation of all involved will be essential to success (including the weather).

Circumstances affecting progress/budget:

No factors have affected the progress or the budget at the time of this report. The assistance of the WisDOT perssonel is greatly appreciated.

Gantt Chart:

Initial Project Progress

PROJECT I.D.	STARTING DATE	COMPLETION DATE	MONTH	REPORT #	PERCENT OF
PROJECT # WISDOT	**JAN 15, 2000**	**JUN 1, 2001**	**J U N 0 1**	6	

CONSULTANT FIRM NAME	% TIME ELAPSED	TOTAL PROJECT FUNDING	CONTRACT FUNDING
UNIVERSITY OF WISCONSIN - MADISON	100.00%	100%	100%

NAME OF STUDY
Minimum Pavement Thickness for Superpave Mixtures

TASK *	YEAR / MONTH	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 5	Qtr 6	Project	Task Complete	Task Complete	Project
	YEAR	2000				2001					
TASK 1 : LITERATURE REVIEW											
1.1 : Literature Review								5	50	10	3
1.2 : Review Meeting								3	100	0	3
TASK 2 : SURVEY											
2.1 : Survey Surrounding States								5	80	10	4.5
TASK 3 : DATA ANALYSIS											
3.1 : Analyze Data and Prepare Guidelines								56	90	5	53.2
3.2 : Interm Report Meeting								3	40	0	1.2
TASK 4 : ANALYSIS											
4.1 : Prepare and Submit Final Report								15	0	0	0
4.2 : Final Report Review and Revisions								5	0	0	0
4.3 : Meeting with the TOC								3	50	20	2.1
4.4 : Final Report Submittal								5	0	0	0
SHOW PROGRESS BY USE OF A BAR CHART:	SCHEDULED										
	COMPLETED							100			67

(Submitted by) (Date)

Project Extension Chart

PROJECT I.D.	STARTING DATE	COMPLETION DATE	MONTH	REPORT #	PERCENT OF		
PROJECT # WISDOT	**March 1, 2001**	**Sept 31, 2001**	**J U N 0 1**	2			
CONSULTANT FIRM NAME	% TIME ELAPSED	TOTAL PROJECT FUNDING	CONTRACT FUNDING				
UNIVERSITY OF WISCONSIN - MADISON	50.00%	100%	100%				
NAME OF STUDY							
Minimum Pavement Thickness for Superpave Mixtures - Field Study Extension							
YEAR	2 0 0 1						
TASK * MONTH	Qtr 2		Qtr 3		Project	Task Complete	Task Complete	Project
TASK 1 : Contractor Survey					3	100	0	3
TASK 2 : Prepare Field Work Plan					3	0	100	3
TASK 3 : Field Study								
3.1 : Set Up Projects					15	0	50	7.5
3.2 : Conduct Studies					20	0	25	5
3.3 : Related Laboratory Work					20	0	0	0
TASK 4 : Analysis & Final Report								
4.1 : Prepare and Submit Final Report					20	0	0	0
4.2 : Final Report Review and Revisions					10	0	0	0
4.3 : Meeting with the TOC					5	0	20	1
4.4 : Final Report Submittal					4	0	0	0
SHOW PROGRESS BY USE OF A BAR CHART:	SCHEDULED							
	COMPLETED				100			19.5

(Submitted by) (Date)

Note: Gantt chart shown in State Fiscal Year Quarters